WHAT IS CLAIMED IS:

1. A display comprising:

a light source comprising an array of light-emitting elements each having a controllable light output; and,

a spatial light modulator comprising a plurality of controllable elements located to modulate light from the light source.

2. The display of claim 1 wherein the spatial light modulator has more controllable elements than the light source has light-emitting elements.

3. The display of claim 2 wherein each of the light-emitting elements of the light source is located to illuminate a plurality of corresponding controllable elements of the spatial light modulator.

4. The display of claim 4 wherein, each of the light-emitting elements of the light source corresponds to eight or more corresponding controllable elements of the spatial light modulator.

5. The display of claim 4 wherein each light-emitting element of the light source corresponds to 145 or fewer corresponding controllable elements of the spatial light modulator.

6. The display of any one of claims 1 to 5 comprising a diffuser located intermediate the light source and the spatial light modulator.

7. The display of any one of claims 1 to 5 comprising a grid of reflective walled channels located intermediate the light source and the spatial light modulator.

8. The display of claim 7 wherein the reflective walled channels are hexagonal and arranged in a honeycomb structure.

9. The display of claim 7 or 8 wherein each of the light-emitting elements emits light into one of the reflective-walled channels.

10. The display of any one of claims 7 to 9 wherein each of the controllable elements of the spatial light modulator is illuminated by light from only one of the reflective-walled channels.

11. The display of any one of claims 1 to 10 comprising a diffuser located between the spatial light modulator and a viewing position.

12. The display of any one of claims 1 to 10 wherein, at the spatial light modulator, a distribution of light incident from each of a plurality of the light-emitting elements of the light source comprises a convolution of a rectangular distribution and a spread function wherein the spread function has a full width at half maximum in the range of $0.3\times d_2$ to $3\times d_2$, where d_2 is a center-to-center spacing on the spatial light modulator of distributions of light modulated by adjacent light-emitting elements of the light source.

13. The display device of any one of claims 1 to 12 wherein the light-emitting elements of the light source each have a number N of discrete selectable brightness levels, and the controllable elements of the spatial light modulator have a number M of discrete selectable brightness levels and $N<M$.

14. The display device of any one of claims 1 to 12 wherein the light-emitting elements of the light source each have a number N of discrete selectable brightness levels, and the controllable elements of the spatial light modulator have a number M of discrete selectable brightness levels and $N>M$.

15. The display of claim 1 comprising one or more additional light modulation stages between the light source and the spatial light modulator.

16. The display of claim 15 wherein the one or more additional light modulation stages each comprise a collimator and a spatial light modulator onto which light modulated by a previous spatial light modulator is imaged.

17. The display of claim 16 wherein the one or more additional light modulation stages each comprise a diffuser.

18. The display of claim 1 comprising imaging optics located to image the light source onto the spatial light modulator.

19. The display of claim 18 wherein the display comprises a front-projection-type display comprising a display screen configured to reflect light to a viewer.

20. The display of claim 19 wherein the spatial light modulator is integrated with the display screen.

21. The display of any one of claims 1 to 20 wherein, a ratio of luminance of a first point, for which a corresponding light-emitting element is at a maximum light output and a corresponding element of the spatial light modulator is set to provide maximum illumination, and a second point, for which the corresponding light-emitting element is at minimum light output and the corresponding element of the spatial light modulator is set to provide minimum illumination, exceeds 1000:1.

22. The display of any one of claims 1 to 20 wherein, a ratio of luminance of a first point, for which a corresponding light-emitting element is at a maximum light output and a corresponding element of the spatial light modulator is set to provide maximum illumination, and a second point, for which the corresponding light-emitting element is at minimum light output and the corresponding element of the spatial light modulator is set to provide minimum illumination, exceeds 1500:1.

23. The display of any one of claims 1 to 22 wherein each of the light-emitting elements comprises a solid state light emitting element.

24. The display of claim 23 wherein the solid state light emitting elements comprise light emitting diodes.

25. The display of claim 24 wherein the light emitting diodes emit white light.

26. The display of claim 23 wherein a color of light emitted by the solid state light emitting elements is controllable.

27. The display of claim any one of claims 1 to 26 wherein the controllable elements of the spatial light modulator comprise variable-transmissivity display elements.

28. The display of claim 27 wherein the variable-transmissivity display elements comprise liquid crystal display elements.

29. The display of any one of claims 1 to 28 wherein the spatial light modulator comprises a color spatial light modulator.

30. The display of claim 29 wherein each controllable element of the spatial light modulator comprises a plurality of color sub pixels.

31. The display of any one of claims 1 to 30 comprising a controller connected to deliver image data to both the light source and the spatial light modulator.

32. The display of claim 31 wherein the controller is configured to periodically refresh the controllable elements and to dim or turn off the corresponding light emitting element while a controllable element is being refreshed.

33. The display of claim 31 or 32 comprising a light detector coupled to receive stray light from at least one of the light-emitting elements and to generate a stray light intensity signal indicative of an intensity of the stray light wherein the controller is configured to: receive the stray light intensity signal; determine a current correction for the at least one of the light-emitting elements based at least in part on the intensity of the stray light from the at least one of the light-emitting elements and a reference value; and, use the current correction in controlling the at least one of the light-emitting elements.

34. The display of any one of claims 31 to 33 wherein upon determining that a defective one of the light-emitting elements is not operating, the controller is configured to increase intensities of other light-emitting elements adjacent to the defective one of the light-emitting elements.

35. The display of any one of claims 31 to 34 wherein upon determining that a defective one of the light-emitting elements is not operating, the controller is configured to increase a transmissivity of those of the controllable elements which correspond to the defective light-emitting element.

36. The display of any of claims 1 to 35 wherein the light-emitting elements are arranged in a regular array.

37. The display of claim 36 wherein the array is a rectangular array.

38. The display of claim 36 wherein the array is a hexagonal array.

39. The display of any of claims 1 to 38 comprising light barriers disposed between adjacent ones of the light-emitting elements.

40. A display according to any one of claims 1 to 39 comprising a control circuit for individually varying the controllable light outputs of the light-emitting elements by varying duty cycles of the light-emitting elements.

41. A display according to any one of claims 1 to 40 comprising a control circuit for individually varying the controllable light outputs of the light-emitting elements by varying electrical driving currents delivered to the light-emitting elements.

42. A display according to claim 33 wherein the light detector is coupled to receive the stray light by a planar waveguide.

43. A display according to claim 42 wherein the light-emitting elements are received in apertures of the planar waveguide and the waveguide captures light emitted by the light-emitting elements in a sideways direction.

44. A display according to claim 43 wherein the planar waveguide is located behind the light-emitting elements.

45. A display according to claim 31 or 32 comprising a planar waveguide located in front of the light-emitting elements and a light sensor coupled to the planar waveguide to detect light emitted by the light-emitting elements.

46. A display according to claim 45 wherein one surface of the planar waveguide is roughened sufficiently to direct a fraction of light emitted by the light-emitting elements into the planar waveguide.

47. A display comprising:

a spatial light modulator comprising an array of controllable elements, each of the controllable elements providing a controllable light transmission;

a light source comprising an array of solid state light-emitting elements each located to illuminate a plurality of corresponding controllable elements of the spatial light modulator and each having a controllable light output; and,

a diffuser;

wherein luminance of a point on the diffuser may be controlled by controlling the light output of one of the light-emitting elements corresponding to the point and controlling the light transmission of one of the controllable elements corresponding to the point.

48. The display of claim 47 having a thickness not exceeding 10 centimeters.

49. A display comprising:

light provision means for providing light spatially modulated at a first spatial resolution;

spatial modulation means for further spatially modulating the light at a second resolution different from the first resolution; and,

means for controlling the first and second spatial modulation means to display an image defined by image data.

50. The display of claim 49 wherein the light provision means comprises an array of individually-controllable light-emitting elements.

51. A display comprising:

a light source;

a first spatial light modulator located to modulate light from the light source;

a display screen comprising a second spatial light modulator; and,

an optical system configured to image light modulated by the first spatial light modulator onto a first face of the display screen.

52. A display comprising:

a light source;

a first spatial light modulator located to modulate light from the light source, the first spatial light modulator comprising an array of controllable pixels; and,

a second spatial light modulator located to modulate light modulated by the first spatial light modulator the second spatial light modulator comprising an array of controllable pixels.

53. A display or a component of a display comprising a novel combination or a novel sub-combination of features described herein.

54. A method for displaying an image having a high dynamic range, the method comprising:

controlling an array of individually-controllable light-emitting elements to have brightnesses determined by a first set of image data;

illuminating a face of a spatial light modulator with light from the array of light-emitting elements, the spatial light modulator comprising an array of elements, each of the elements having a controllable transmissivity; and,

controlling the transmissivity of the elements of the spatial light modulator with a second set of image data.

55. The method of claim 54 wherein the second set of image data is higher in resolution than the first set of image data.

56. A method for displaying an image comprising a novel set of actions or a novel subset of actions described herein.